AMENDMENTS TO THE CLAIMS

Please amend claims 1, 15, 22, 28, 31, 35-37, 41, and 42, and add new claim 57, as follows. A complete listing of the current pending claims is provided below and supersedes all previous claims listing(s).

1. (Currently Amended) A method of determining a position of a target region in a medical procedure, comprising:

acquiring an input image of a target region;

enhancing a feature of the input image such that an image of a moving object is enhanced relative to an image of a relatively stationary object;

registering the input image with a template; and

determining a position of the target region in the input image based on the registering.

2. (Original) The method of claim 1, wherein the enhancing comprises determining a composite image of previously acquired input images.

3. (Original) The method of claim 2, wherein the determining a composite image comprises performing an image averaging on the previously acquired input images.

4. (Original) The method of claim 2, wherein the enhancing further comprises subtracting the composite image from the input image.

5. (Original) The method of claim 3, wherein the image averaging is performed using a boxcar averaging technique.

6. (Original) The method of claim 3, wherein the image averaging is performed based on a weighted average.

7. (Original) The method of claim 1, further comprising selecting the template from a plurality of templates.

8. (Original) The method of claim 7, wherein the selecting comprises choosing a template from the plurality of templates that best matches at least a portion of the input image.

9.   (Original) The method of claim 7, wherein the selecting comprises:

comparing the input image with at least a subset of the templates; and

selecting the template that best matches at least a portion of the input image.

10.   (Original) The method of claim 7, wherein the selecting comprises comparing the input image with the template that is generated at approximately a same time-point or a same phase of a physiological cycle as the input image.

11.   (Original) The method of claim 7, wherein the selecting comprises:

determining a previously registered template; and

comparing the input image with the template next in line to the previously registered template.

12.   (Original) The method of claim 1, wherein the determining a position of the target region comprises determining a position of the image in the input image that best matches the template.

13.   (Original) The method of claim 1, wherein the input image comprises a fluoroscopic image.

14.   (Original) The method of claim 1, further comprising performing a medical procedure based on the determined position of the target region.

15.   (Currently Amended) The method of claim 14, wherein the medical procedure comprises directing a radiation beam to ~~an object~~ the target region.

16.   (Original) The method of claim 15, wherein the performing the medical procedure comprises changing a direction of a radiation beam in response to the determined position.

17.   (Original) The method of claim 15, wherein the performing the medical procedure comprises gating a delivery of the radiation beam in response to the determined position.

18.   (Original) The method of claim 1, wherein the target region comprises at least a part of an animal body.

19.   (Original) The method of claim 18, wherein the at least a part of an animal body comprises a lung tissue or a heart tissue.

20.   (Original) The method of claim 18, wherein the at least a part of an animal body comprises a bone.

21.   (Original) The method of claim 1, wherein the target region comprises at least a part of a non-animal object.

22.   (Currently Amended) A system for determining a position of a target region in a medical procedure, comprising:

    means for acquiring an input image of a target region;

    means for enhancing a ~~moving object~~ feature in the input image such that an image of a moving object is enhanced relative to an image of a relatively stationary object;

    means for registering the input image with a template; and

    means for determining a position of the target region in the input image based on the registering.

23.   (Original) The system of claim 22, wherein the means for enhancing comprises means for determining a composite image of previously acquired input images.

24.   (Original) The system of claim 22, further comprising means for selecting the template from a plurality of templates.

25.   (Original) The system of claim 24, wherein the means for selecting comprises means for choosing a template from the plurality of templates that best matches an image in the input image.

26.   (Original) The system of claim 22, wherein the means for acquiring an input image comprises means for generating a fluoroscopic image.

27.   (Original) The system of claim 22, further comprising means for performing a medical procedure based on the determined position of the target region.

28.   (Currently Amended) The system of claim 27, wherein the means for performing the medical procedure comprises means for directing a radiation beam to ~~an object~~ target region.

29.   (Original) The system of claim 28, wherein the means for performing the medical procedure comprises means for changing a direction of a radiation beam in response to the determined position.

30.   (Original) The system of claim 28, wherein the means for performing the medical procedure comprises means for gating a delivery of the radiation beam in response to the determined position.

31.   (Currently Amended) A computer readable medium having a set of stored instructions, the execution of which causes a process to be performed, the process comprising:

acquiring an input image of a target region;

enhancing a moving ~~object~~ feature in the input image such that an image of a moving object is enhanced relative to an image of a relatively stationary object;

registering the input image with a template; and

determining a position of the target region in the input image based on the registering.

32.   (Original) The computer readable medium of claim 31, wherein the enhancing comprises determining a composite image of previously acquired input images.

33.   (Original) The computer readable medium of claim 31, wherein the process further comprising selecting the template from a plurality of templates.

34.   (Original) The computer readable medium of claim 33, wherein the selecting comprises choosing a template from the plurality of templates that best matches an image in the input image.

35.   (Currently Amended) The computer readable medium of claim ~~30~~ 31, wherein the input image comprises a fluoroscopic image.

36. (Currently Amended) The computer readable medium of claim ~~30~~ 31, wherein the process further comprising performing a medical procedure based on the determined position of the target region.

37. (Currently Amended) The computer readable medium of claim 36, wherein the medical procedure comprises directing a radiation beam to ~~an object~~ the target region.

38. (Original) The computer readable medium of claim 37, wherein the performing the medical procedure comprises changing a direction of a radiation beam in response to the determined position.

39. (Original) The computer readable medium of claim 37, wherein the performing the medical procedure comprises gating a delivery of the radiation beam in response to the determined position.

40. (Original) A method of monitoring a position of an object, comprising:

providing a reference image of the object;

acquiring a first image of the object;

determining a first composite image based on the reference image and the first image; and

determining whether the object has moved based at least on the first composite image.

41. (Currently Amended) The method of claim 40, further comprising determining a first value associated with a contrast of the first ~~difference~~ composite image.

42. (Currently Amended) The method of claim ~~40~~ 41, wherein the determining whether the object has moved is performed based on the first value.

43. (Original) The method of claim 40, further comprising:

acquiring a second image of the object;

determining a composite image based on the second image and the reference image; and

determining whether the object has moved based at least on the second composite image.

44.   (Original) The method of claim 43, further comprising determining a second value associated with a contrast of the second composite image.

45.   (Original) The method of claim 44, wherein the determining whether the object has moved is performed based on the second value.

46.   (Original) The method of claim 40, wherein the object comprises at least a portion of an animal body.

47.   (Original) The method of claim 46, wherein the at least a portion of an animal body comprises a bone.

48.   (Original) The method of claim 40, wherein the first image comprises a fluoroscopic image.

49.   (Original) The method of claim 40, further comprising enhancing a moving object in the first image.

50.   (Original) A system for monitoring a position of an object, comprising:

        means for providing a reference image of the object;

        means for acquiring a first image of the object;

        means for determining a first composite image based on the reference image and the first image; and

        means for determining whether the object has moved based at least on the first composite image.

51.   (Original) The system of claim 50, further comprising means for determining a first value associated with a contrast of the first composite image.

52.   (Original) The system of claim 50, further comprising means for enhancing a moving object in the first image.

53.   (Original) A computer readable medium having a set of stored instructions, the execution of which causes a process to be determined, the process comprising:

providing a reference image of the object;

acquiring a first image of the object;

determining a first composite image based on the reference image and the first image; and

determining whether the object has moved based at least on the first composite image.

54.   (Original) The computer readable medium of claim 53, wherein the process further comprising determining a first value associated with a contrast of the first difference image.

55.   (Original) The computer readable medium of claim 53, wherein the determining whether the object has moved is performed based on the first value.

56.   (Original) The computer readable medium of claim 53, wherein the process further comprising enhancing a moving object in the first image.

57.   (New) The method of claim 40, wherein the reference image and the first image are obtained from a same imaging direction relative to the object.